

Date Mailed December 19, 2003

BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN

Joint Application of Minnesota Power Company and
Wisconsin Public Service Corporation for Authority to
Construct and Place in Service Electric Transmission Lines
and Other Electric Facilities for the Arrowhead-Weston Project,
Located in St. Louis County in Minnesota, and Chippewa, Clark,
Douglas, Lincoln, Marathon, Oneida, Price, Rusk, Sawyer, Taylor,
and Washburn Counties in Wisconsin

05-CE-113

ORDER MODIFYING FINAL ORDER

Statement of the Proceeding

On October 30, 2001, the Public Service Commission (Commission) issued its Final Decision in this docket authorizing Wisconsin Public Service Corporation (WPSC), Minnesota Power (MP), and American Transmission Company (ATC) (applicants) to construct a 345 kV transmission line from the Arrowhead Substation near Duluth, Minnesota to the Weston Substation near Wausau, Wisconsin.

On November 26, 2002, the applicants filed three petitions requesting that the Commission's Final Decision be amended to authorize revised project costs (cost petition), to allow the applicants to construct a fiber-optic cable for the sole purpose of monitoring, operating and protecting the transmission grid (fiber petition), and to clarify the effective date of the certificate of public convenience and necessity (CPCN) (CPCN petition).

The Commission reopened this proceeding on December 17, 2002, to consider the multiple petitions of the applicants to modify the final decision, and to solicit comments from the parties and the public. Commission staff memos to the Commission dated February 18, 2003,

February 25, 2003, and March 25, 2003, presented alternatives regarding the fiber, CPCN, and cost petitions, respectively. By order dated April 24, 2003, the Commission ordered rehearing to gather more information on the cost petition and certain aspects of the fiber petition. In the same order, the Commission also determined that it would hear testimony regarding the following issues:

1. What is the current estimated cost of the Arrowhead-Weston line, including the proposed fiber optics and substation improvements? As part of this issue, the record shall also address the environmental impacts of the substation improvements now being proposed.
2. The 1999 WRAO¹ Report identified six EHV [extra high voltage] transmission line alternatives to an Arrowhead-Weston line. The Commission's prior record showed that two of the alternatives (Salem-Fitchburg and Lakefield Junction-Columbia) are not reasonable alternatives because of electrical performance limitations. What are the current estimated costs of the other four EHV transmission line alternatives identified in the 1999 WRAO Report?
3. How has Wisconsin's electric generation and transmission system changed since the Commission issued its Final Decision in this docket on October 30, 2001?
4. Because of the changes identified in Issue 3, could any alternative (other than building the Arrowhead-Weston line or building one of the four EHV lines identified in Issue 2) resolve the current problems of the electric generation and transmission system in a manner that is both cost-effective and technically feasible? For purposes of this proceeding, a "technically feasible" alternative must remedy any security issues currently existing in Wisconsin's transmission system that would be remedied by the Arrowhead-Weston line.

¹ In 1998, the Wisconsin Reliability Assessment Organization (WRAO) was formed by several Wisconsin electric utilities. The WRAO formed a transmission analysis task force to study regional constraints affecting Wisconsin's ability to import electricity and to investigate system reinforcement alternatives to alleviate those constraints. The task force included participation from electric utilities in Illinois, Iowa, Minnesota, Wisconsin, Michigan, and Manitoba. Mid Continent Area Power Pool (MAPP) and Mid America Interconnected Network (MAIN) both endorsed the study group as a regionally recognized study effort. The study group released an initial report in August of 1998 (*Wisconsin Interface Reliability Enhancement Study Phase I Report*) and a second report in June 1999 (*Wisconsin Interface Reliability Enhancement Study Phase II Report*) (WIRES Report). Following completion of the Phase II Report, the WRAO filed with the Commission on June 14, 1999, the Report of the *Wisconsin Reliability Assessment Organization on Transmission System Reinforcement in Wisconsin* (1999 WRAO Report). As a possible solution for alleviating the constraints identified in the study, the 1999 WRAO Report recommended construction of a 345 kV line from the Arrowhead Substation near Duluth, Minnesota to the Weston Substation near Wausau, Wisconsin.

5. In light of the currently projected costs and benefits of the Arrowhead-Weston line, of the four EHV lines identified in Issue 2, and of any alternatives identified in Issue 4, does the issuance of a CPCN for the Arrowhead-Weston line continue to be a reasonable choice?

Technical hearings on the applicants' petitions were held in Madison on September 16 through 19, 2003. Hearings in the project area were held on October 1, 2003, in Solon Springs, October 2, 2003, in Ladysmith, and on October 3, 2003, in the Wausau area. An additional hearing in the project area was held on November 13, 2003, in Ladysmith. Initial briefs and reply briefs were filed with the Commission on November 7, 2003, and December 2, 2003, respectively. Replies limited to arguments made in the December 2, 2003, reply briefs and based on public testimony given at the November 13, 2003, hearing in the project area were filed on December 5, 2003.

On November 25, 2003, intervenor Save Our Unique Lands (SOUL) filed a Motion to Reopen the Record. A limited scope evidentiary hearing was held on December 3, 2003, in response to that motion and supplemental briefs limited to that hearing were filed on December 8, 2003.

FINDINGS OF FACT

1. WPSC is a public utility, as defined in Wis. Stat. § 196.01(5). MP is a Minnesota corporation that provides public utility services in Minnesota and Wisconsin through its utility affiliates. ATC is a transmission company, as defined in Wis. Stat. § 196.485(1)(ge), and a public utility, as defined in Wis. Stat. § 196.01(5).

2. A reasonable estimate of the cost of construction of the Arrowhead-Weston project is \$420,308,000. This estimate includes the cost of installation of a fiber optic communication system consisting of a 12-strand fiber optic ground wire (OPGW) and other

necessary equipment and \$15 million dollars for farm disease mitigation. This estimate does not include the cost of an underground crossing of the Namekagon River.

3. Given the detailed nature of the cost estimates presented in this reopened proceeding, it is reasonable to permit the applicants to exceed the estimated cost of construction of the Arrowhead-Weston project by five percent before having to obtain additional authorization from the Commission.

4. It is in the public interest to permit the applicants to install a fiber optic communication system consisting of a 12-strand OPGW and other necessary equipment for the sole purpose of monitoring, operating and protecting the Arrowhead-Weston project or the transmission grid generally and not for any non-utility purpose. It is reasonable to require the applicants to file with the Commission an annual report detailing the applicants' fiber optic cross section composition and utilization.

5. The facilities approved in this order for the Arrowhead-Weston project are necessary to satisfy the reasonable needs of the public for an adequate and reliable supply of energy.

6. The facilities approved in this order for the Arrowhead-Weston project are in the public interest considering alternative sources of supply and routes, individual hardships, engineering, economic, safety, reliability, and environmental factors.

7. The facilities approved in this order for the Arrowhead-Weston project will provide usage, service, or increased reliability benefits to wholesale and retail customers or members in this state, and the costs are reasonable in relation to the benefits of the project.

8. The facilities approved in this order for the Arrowhead-Weston project will not have undue adverse impact on other environmental values.

9. The facilities approved in this order for the Arrowhead-Weston project will not substantially impair the efficiency of the applicants' service or provide facilities unreasonably in excess of the probable future requirements. When placed in operation, the facilities will increase the value or available quantity of service in proportion to the amount they increase the cost of service.

10. The facilities approved in this order for the Arrowhead-Weston project will not unreasonably interfere with orderly land use and development plans for the area involved.

11. The facilities approved in this order for the Arrowhead-Weston project will not have a material adverse impact on competition in the relevant wholesale electric service market.

12. Alternatives that consist of energy conservation, the use of renewable resources, and the use of other energy priorities listed in Wis. Stat. §§ 1.12 and 196.025 are not cost-effective or technically feasible.

13. The conditions specified in this order are in the public interest. Specifically, it is in the public interest to require that WPSC, MP, and ATC:

a. Develop and obtain Commission approval of a Farm Disease Mitigation plan for the Arrowhead-Weston project that provides specific information about the special construction considerations the applicants intend to use to minimize the spread of farm diseases and a detailed estimate of the cost of utilizing these special construction considerations in the construction of the project.

b. Refrain from commencing construction of any specific construction spread of the Arrowhead-Weston project until the Commission has approved both Part A of the Construction and Mitigation Plan and, for that specific construction spread, Part B of the plan.

14. The public convenience and necessity require completion of the Arrowhead-Weston project.

15. In the context of this application, literal compliance with the requirement of Wis. Stat. § 196.491(3)(e) that all Wisconsin Department of Natural Resources (DNR) permits and approvals required for construction be obtained before a CPCN may be issued would effectively preclude construction of the project. The extreme length of the project, the number of landowners affected and landowner opposition to the project precludes, as a practical matter, the procurement on a voluntary basis of the land interest necessary to obtain all DNR permits necessary for construction. In order to assure that the DNR permits are processed and the project is constructed, the applicants will need the authority to condemn necessary land interests in parcels needed for construction of the project.

CONCLUSIONS OF LAW

1. Construction of the temporary substation addition at Stone Lake and relocation of the Weston Substation do not constitute substantial changes to the proposed action, or significant new circumstances, that would affect the quality of the human environment in a significant manner or to a significant extent not already considered in the final environmental impact statement (EIS). The preparation of a supplemental draft and final EIS in this docket is not required by Wis. Stat. § 1.11 and Wis. Admin. Code ch. PSC 4.

2. The Commission is authorized under Wis. Stat. §§ 1.12, 196.025, 196.49, and 196.491, 196.39, 196.395 and Wis. Admin. Code chs. PSC 111 and 112 to issue the following order and amended certificate, authorizing WPSC, MP, and ATC to construct the Arrowhead-Weston project.

OPINION

I. PETITION TO AMEND THE FINAL ORDER TO AUTHORIZE REVISED PROJECT COSTS

A. Current Estimated Cost of the Arrowhead-Weston Project

The applicants' current total estimated cost for the Arrowhead-Weston project is \$420.3 million, including facilities to be constructed in Wisconsin and Minnesota. The estimate includes approximately \$4.3 million for fiber optic facilities, \$56.8 million for substation facilities, and \$15.0 million for farm disease mitigation. The applicants' estimate does not include costs for an underground crossing of the Namekagon River, if such a crossing would be required by the National Park Service (NPS). Costs associated with a possible underground crossing of the Namekagon River range from \$4.1 to \$12.7 million, depending on whether the NPS requires the existing or the proposed line to be placed underground, or both.

The Commission retained RW Beck to assess the accuracy of the applicants' estimates of both the Arrowhead-Weston project and the King-Weston alternative. RW Beck's report described the various cost areas which it had reviewed, and stated the results of its investigation. In completing its review of the applicants' estimated cost of the two projects, RW Beck used industry standard estimating guides and estimating methods, general field observations of the project sites, as well as its experience with cost estimates for other transmission projects. RW Beck did not perform any engineering analyses of the projects' relative performance, nor was it asked by the Commission to do so. In RW Beck's opinion, the applicants' estimate of total project cost for both the Arrowhead-Weston project and the King-Weston alternative are reasonably accurate.

For the Arrowhead-Weston project, RW Beck identifies farm disease mitigation as an area that could affect the total estimated cost of the project. As discussed in this order, farm

disease mitigation is an emerging issue that could require special construction considerations during ingress and egress from lands used for agricultural purposes. The special construction considerations and estimates of costs associated with those activities are not well developed in the record, or in practice.

The estimated total cost of the Arrowhead-Weston project, including fiber optic facilities, substation facilities, and an allowance for farm disease mitigation, but excluding the estimated cost of any underground crossing of the Namekagon River if required by the NPS, is \$420.3 million, detailed as follows:

Arrowhead-Weston Revised Project Cost

Transmission Construction

Structures & Foundations	\$120,718,000	
Foundation Adders	\$6,656,000	
Counterpoise for Added Grounding	\$953,000	
Wire	\$30,826,000	
Wetlands Accessibility Adder	\$8,819,000	
Mobilization and Demobilization	\$1,140,000	
Environmental Devices	\$1,891,000	
Miscellaneous Construction Devices	\$1,630,000	
Contractor Field Office Facilities and Personnel	\$4,067,000	
Construction & Mitigation Plan – Premium & Monitoring	\$6,060,000	
Construction Management	\$9,226,000	
Subtotal Transmission Construction		\$191,986,000

Other Facilities, Land Rights, and Rights-of-Way

Communication – OPGW 12-Fiber	\$4,312,000	
Clearing Rights-of-Way	\$7,222,000	
ROW Acquisition & Legal Assistance	\$23,943,000	
Railroad & Pipeline Interference Studies	\$1,225,000	
Namekagon EIS	\$500,000	
Subtotal Other Facilities, Land Rights, and Rights-of-Way		\$37,202,000

Removal and Salvage

Removal	\$2,703,000	
Salvage	\$(59,000)	
Subtotal Removal and Salvage		\$2,644,000

Engineering and Special Construction Considerations

Local Engineering	\$16,572,000	
Foreign Engineering	\$16,097,000	
Farm Disease Mitigation	\$15,000,000	
Temporary Line Construction	\$2,000,000	
Subtotal Engineering and Special Construction Considerations		\$49,669,000

Substations

Substations	\$56,805,000	
Subtotal Substations		\$56,805,000

Licensing, Fees, and AFUDC

Licensing	\$8,239,000	
Environmental Impact Fee	\$17,361,000	
AFUDC	\$56,402,000	
Subtotal Licensing, Fees, and AFUDC		\$82,002,000

Total Project Estimate		<u>\$420,308,000</u>
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Condition 3 of the Commission's Final Decision in this docket states:

The applicants shall notify the Commission before proceeding with any substantial changes in the design, size, cost (exceeding 10 percent of the estimated cost shown in the Certificate above), location, or ownership of the Arrowhead-Weston project facilities. (Final Decision, 59)

That order condition contemplates that such substantial changes in cost or scope would be discovered after construction has commenced. In this docket, the applicants discovered that the cost and, to a certain extent, the scope has changed prior to the commencement of construction, prompting the applicants to file the cost petition. The applicants have refined the total cost estimate for the Arrowhead-Weston project, and the project cost estimate has been reviewed by the applicants' and the Commission's independent consultants.

The applicants state that the current project cost estimate for the Arrowhead-Weston project is within 10 percent of the total final cost. However, it is appropriate for the Commission to condition its order to assure that costs are controlled. Because the applicants' have had an opportunity to revise the total project cost estimate, it is appropriate to include a lower threshold for notifying the Commission of further revised estimated project costs. The Commission determines this percentage to be 5 percent, applied to the total estimated cost of the Arrowhead-Weston project, \$420,308,000.

In addition to the reporting requirement, it is appropriate for the Commission to require further approval if that 5 percent threshold is exceeded. Further cost overruns will be closely scrutinized and may be subject to a prudence review. In addition, it is appropriate for the Commission to condition its order requiring the applicants to annually submit an updated total estimated cost of the project as it is being constructed. Under the Commission's Final Decision,

the applicants are required to file quarterly progress reports during construction. Condition 2 of the Final Decision states:

The Joint Applicants shall submit quarterly progress reports to the Commission indicating the Arrowhead-Weston project's major construction and environmental milestones, the extent of physical completion to date, and expenditures to date, commencing within 90 days of the date that construction commences. (Final Decision, 59)

That condition will remain; however, once annually the quarterly report should also include a revised total project cost estimate with a detailed cost breakdown as shown in the above-stated revised cost estimate. Such annual revised cost estimates will give the Commission regular updates and provide an opportunity to address any concerns as they arise. Such a reporting requirement is directed in combination with the 5 percent cost exceedence reporting requirement.

1. Farm Disease Mitigation

Farm disease mitigation is an emerging issue that could require special construction considerations during ingress and egress from lands used for agricultural purposes. The special construction considerations and estimates of costs associated with those activities are not well developed in the record, or in practice.

The applicants include \$15 million for farm disease mitigation in the total estimated cost for the Arrowhead-Weston project. However, the actual special construction considerations that would be needed are uncertain, and the actual costs could vary from that estimated by the applicants. No itemized cost estimate of the special construction considerations assumed to be required is presented by the applicants.

While the Department of Agriculture, Trade and Consumer Protection (DATCP) has the authority to impose quarantines of diseased animals and to seize plants and plant products

suspected of harboring pests or diseases, it has no regulations specifically addressing “agricultural biosecurity,” or farm disease mitigation. DATCP indicates that special construction considerations for agricultural biosecurity could include removal of manure, mud, and seeds from the tires of work equipment if the equipment had crossed land with animals or sensitive plant areas. This procedure would include pressure washing, similar to the procedure typically used to avoid the spread of exotic plant species, such as purple loosestrife. The material removed from the vehicles may or may not need to be collected, and possibly could be left at the edge of the property on which it originated.

DATCP maintains that there is a range of legitimate practices that a producer concerned with farm diseases may use on the agricultural property. These include: restricting access to certain areas of the property, such as areas where manure is spread; requiring anyone entering the property to wear protective clothing or boots and to disinfect clothing and boots; requiring vehicles or equipment to be cleaned or disinfected before entering the property; and preventing unknown animals from entering the farm premises. DATCP has no specific regulations in any of these areas, beyond the broad authority discussed above.

It is not clear that all farm disease mitigation special construction considerations would need to be followed on every agricultural property. If a producer is not implementing any farm disease mitigation procedures at the time of construction on the property, it may not be reasonable to expect the applicants to implement an extremely sophisticated and complicated set of special construction considerations.

The applicants intend to manage the construction of this project in segments, or “construction spreads.” Each construction spread will be treated as a separate project, with appropriate construction supervision and management, material acquisition, contractor

arrangements, and construction crews. Construction spreads will be established that are manageable as separate projects, and that make sense from the standpoint of constructability and other criteria. For instance, it is unlikely that a construction spread will be established that is so long that construction supervisors could not travel from end to end within a reasonable time. Extensive travel time would diminish the effectiveness of the construction supervision. Construction on individual construction spreads would only begin after regulatory requirements for the project as a whole are met, and specific criteria are met for the construction spread. Consequently, different construction spreads may be in different phases of completion at any given time during the construction of the project as a whole. Some construction spreads may be completed before others are started.

The applicants' estimated cost of up to \$15 million for farm disease mitigation is a reasonable allowance; however there is sufficient uncertainty in the nature of farm disease mitigation practices and associated costs to require the applicants to submit and obtain Commission approval of a more detailed estimate of associated costs before construction commences. Commissioner Garvin dissents as to the amount to be included in the total estimated amount, finding that \$5 million is a sufficient amount for this effort.

The applicants will be required to file a farmland protection plan, including a detailed estimate of total project farm disease mitigation costs, for review and approval by the Commission. As construction proceeds, the applicants shall submit spread-by-spread plans that include the specific farm disease mitigation measures required and estimated costs for each construction spread.

2. Namekagon River Crossing

The cost of underground facilities at the crossing of the Namekagon River is estimated at from \$4.1 to \$12.7 million, and is not included in the applicants' current estimated cost of the Arrowhead-Weston project.

The applicants will be required to file with the Commission a protection plan for the Namekagon River crossing. Because of uncertainty in the estimated cost of any underground crossing of the Namekagon River, the plan should include a detailed estimate of costs associated with an underground crossing if such a crossing is required by the NPS, for review and approval by the Commission.

B. Current Estimated Costs of the Other EHV Transmission Line Alternatives

The applicants produced evidence in this proceeding concerning the cost of the four viable EHV alternatives identified in the 1999 WRAO Report. Black & Veatch had prepared the original cost estimates for the WRAO alternatives in 1999 and updated these for the applicants in 2002 and 2003. The Black & Veatch estimates for the WRAO alternatives were prepared in year of occurrence dollars, not on the basis of present value revenue requirement (PVRR). Year of occurrence costs reflect the cost of the alternative at the time the alternative would be constructed, and include an estimate of inflation in the estimated cost of construction. PVRR analysis resolves the estimated cash flows of the alternatives, either inflated or discounted, into equivalent present costs. Year of occurrence dollars most closely approximates the ratepayers' cost since the actual cost of construction whenever that takes place will be recovered from ratepayers. The applicants translated the Black & Veatch year of occurrence estimates into PVRR estimates using 2002 as the equivalent. For the purpose of comparing the cost of the

Arrowhead-Weston project with the other EHV alternatives, the revised cost estimates which the Commission accepts as reasonable are as follows:

WRAO Alternative	Revised Cost Estimate (2002 Dollars)	Revised Cost Estimate (Year of Occurrence Dollars)
Prairie Island-Columbia 345 kV	\$432,989,000	\$555,964,000
Arrowhead-Weston 345 kV	\$379,209,000	\$420,308,000
Chisago-Weston 345 kV	\$411,329,000	\$520,201,000
King-Weston 345 kV (South)	\$310,578,000	\$386,708,000
King-Weston 345 kV (North)	\$332,900,000	\$415,043,000

Some intervenors have argued that the cost estimates for the Arrowhead-Weston project are understated because they do not contain an estimate of the associated projects which were identified in the 1999 WRAO Report as necessary for the project to attain its full performance. These associated projects are, typically, lower voltage transmission lines and equipment upgrades in the project area which have to be constructed to accommodate higher flows that may be present in the event of a single contingency outage. (A single contingency outage is the unexpected loss of any one transmission line or transformer.) All of the EHV alternatives presented in the 1999 WRAO Report had associated projects identified with them. None of the revised estimates presented by the applicants include the cost of the associated projects. The exclusion of estimated costs for associated projects does not diminish the validity of the applicants' revised cost estimates as a measure of the relative costs of the various projects. The project currently before the Commission is the Arrowhead-Weston project, not any or all of the associated projects. Including the costs of the associated projects in an estimate of the cost of each of the EHV alternatives would be speculative. First, the scope of the associated projects to be evaluated for each EHV alternative may have changed due to ongoing transmission system upgrades since the 1999 WRAO Report was completed. Second, the cost of the various

upgrades to those projects may not be reliably known without specific analysis of the alternatives.

C. Changes to Wisconsin's Electric Generation and Transmission System

Given the substantial increase in the estimated cost for the Arrowhead-Weston project, the Commission decided to examine how Wisconsin's generation and transmission system had changed since the Commission issued its Final Decision in this docket on October 30, 2001. The purpose of this analysis was to determine whether the need continues for construction of the Arrowhead-Weston project, in light of any additions to Wisconsin's generation resources or any new or upgraded transmission facilities that have been placed in service subsequent to the Final Decision.

The applicants conducted an analysis to assess the major changes to Wisconsin's electrical system that occurred since the Final Decision, and to determine if those changes—individually or collectively—would change the conclusion of the 1999 WRAO Report that the Arrowhead-Weston project is a viable alternative to raise the import capability into Wisconsin and to meet the other planning goals underlying the report. The planning goals include a non-simultaneous import capability of 2,000 MW into the Wisconsin-Upper Michigan System² (WUMS) from the west, a non-simultaneous import capability of 2,000 MW into WUMS from the south, and a simultaneous transfer capability of 3,000 MW into WUMS from the south and west combined. These import capability goals are identified in the 1999 WRAO Report, and are

² Wisconsin is divided electrically between eastern and western areas. Utilities in western Wisconsin (generally west and north of the Wisconsin River Valley) belong to MAPP and generally have sufficiently strong connections with Minnesota to meet their power needs. Utilities in eastern Wisconsin belong to MAIN and serve the bulk of the electrical demand in the state. Eastern Wisconsin and that portion of Upper Michigan, which is part of MAIN, comprise a geographical subset of MAIN called WUMS. Electrically, WUMS is closely integrated into MAIN.

also known as the 2k/2k/3k transfer objective. The 1999 WRAO Report evaluated alternative EHV projects on several factors including: interface improvement (including, in addition to transfer capability, generator response to switching, dynamic and stability performance); environmental and social impacts; construction costs; system losses; and geographic diversity. All of these factors, considered comprehensively, were addressed in the 1999 WRAO Report.

The applicants identified nine significant system changes since the Commission issued its Final Decision on October 30, 2001: the Eau Claire-Arpin flow limit; Transmission Loading Relief (TLR) events; increased generation and load; the elimination of the Tripoli-Highway 8 115 kV line option; increased load on the Rhinelander loop; approval of the Chisago-Apple River line at 161 kV instead of 230 kV; other new transmission projects; increased costs of all the WRAO alternatives; and the formation of the Midwest Independent System Operator (MISO). Each of these changes was checked against the four other final EHV alternatives in the 1999 WRAO Report to determine if the changes would materially impact the conclusions of the 1999 WRAO Report. The four other EHV alternatives included: Prairie Island-Columbia 345 kV; Chisago-Weston 345 kV; Apple River-Weston 230 kV; and King-Weston 345 kV. The Commission concludes that these changes would not affect the conclusion of the 1999 WRAO Report, as discussed further below:

1. Eau Claire – Arpin Flow Limit

The Eau Claire-Arpin flow limit was 775 MW when the 1999 WRAO Report was prepared. Since that time, operational changes in the lower voltage system have allowed that limit to be raised to 790 MW. Some of the lower voltage transmission line and equipment improvements in the central Wisconsin area were assumed to be in service in the 1999 WRAO Report. These include the rebuild of the Pine Lake-Cassal 115 kV line which allows the Wien-T

Corners 115 kV line to stay in service during a contingency outage of the Eau Claire-Arpin 345 kV line. Keeping the Pine Lake-Cassal 115 kV line in service reduces the phase angle problem in the Weston and Arpin areas. However, these improvements do not offset the need for a transmission solution to address the WRAO objectives of increased security and transfer capability of the Wisconsin transmission system.

2. TLR 5 Events

Prior to the summer of 2002, no TLR 5 events³ had been called on the Eau Claire-Arpin line and such events were not a concern addressed in the 1999 WRAO Report. A TLR 5 event calls for the immediate interruption of firm transmission service for firm power purchases. Further, the transmission of non-firm economic power purchases is not allowed during a TLR 5 event, and generation resources must be redispatched in order to protect network services.

In 2002, there were four TLR 5 events lasting at least 24 hours, during which firm power transactions on the Eau Claire-Arpin 345 kV line were curtailed. These occurrences reinforce the conclusion that the WUMS interfaces are completely utilized and that the Eau Claire-Arpin transmission line is operating near security limits. Congestion and security continues to be a concern relative to Wisconsin's transmission system. The TLR 5 events that have continued to occur subsequent to the Commission's Final Decision in this docket clearly establish that the transmission system in Wisconsin is operating at full capacity for existing generation and firm power purchases and confirms that the 2k/2k/3k transfer target into WUMS continues to be an appropriate planning target.

³ North American Electric Reliability Council's (NERC) Transmission Loading Relief (TLR) procedures are defined between Level 0 and Level 6. The purpose of TLR procedures is to identify and manage power operations to keep the transmission system secure. At Level 3, non-firm transmission service is curtailed. At Level 4, transmission system flows are reconfigured to allow firm transmission service to continue. At Level 5, firm transmission service is curtailed in two stages: The first stage is to reduce firm service partially; the final stage is to mitigate operating security limit violations. Level 6 is emergency action.

Other recent events that demonstrate the continuing weakness of the Wisconsin transmission system include the continuation of the Eau Claire-Arpin operating guide flow limit and high loadings on the Lore-Turkey River-Cassville 161 kV line. Because of those and other such events, ATC's annual transmission system reliability assessment for the summer of 2003 initially found that the transmission system in WUMS would not be able to meet a 0.1 Loss of Load Expectation (LOLE) because of limitations for single contingencies to cover current imports. An emergency backup transformer was placed in service to relieve this situation. With the temporary transformer in place, ATC determined that its system would meet the 0.1 LOLE for 2003. A permanent solution which involves the Wisconsin, Illinois and Iowa transmission systems is still being developed. The Arrowhead-Weston project would not have prevented this problem, but the system continues to need additional interface improvements to improve the transfer capability into WUMS. As another example, in the summer of 2002, a large power flow occurred on the Eau Claire-Arpin line caused by a generation and load imbalance in Manitoba. This situation left the Wisconsin transmission system potentially vulnerable to voltage collapse. Non-firm power transactions were curtailed and some generation was redispatched. The Arrowhead-Weston project or other EHV alternatives would have lowered the power flows on parallel lines reducing the impact of the contingency loss of the Eau Claire-Arpin line.

3. New Generation and Load

There has been 1,230 MW of new generation added in WUMS between 1998 and 2002. The new generation is 450 MW greater than that projected in the WIRES Report.⁴ The 2002 peak load in WUMS was 579 MW higher than projected for 2002 in the WIRES Report. The net difference is 129 MW of additional load than was projected. (The projected load in the study for

⁴ See footnote 1.

2002 was 11,687 MW.) This does not change the transfer capability of the Arrowhead-Weston project, or that of any of the alternatives.

4. Tripoli-Highway 8 115 kV Transmission Line

The Tripoli-Highway 8 115 kV line was a component segment of the original proposed Arrowhead-Weston project that was not used by any other EHV alternative, but rather was intended to reinforce and support the transmission system in the Rhinelander area, now known as the Rhinelander Loop. The Commission agreed with the need for support for the Rhinelander area, but rejected the Tripoli-Highway 8 115 kV transmission proposal in its Final Decision. The Rhinelander Loop reinforcement is being addressed by another transmission project, the first portion of which has since been given approval by the Commission in docket 137-CE-114. The rejection of the Tripoli-Highway 8 115 kV segment does not affect the comparison of the EHV alternatives.

5. Load on the Rhinelander Loop

In 2001, the summer peak on the Rhinelander Loop was approximately the same as the forecasted peak in the WRAO Report for 2006. This is a five-year shift forward in time in projected demand. This added demand in the Rhinelander area indicates the need for earlier support for that area but does not affect the comparison of the transmission alternatives because they do not support the Rhinelander area.

6. Chisago-Apple River Transmission Line Approved at 161 kV

The WIRES Report assumed that the Chisago-Apple River line would be constructed at 230 kV, as the Commission originally approved. Subsequent to the Commission's approval of the Chisago-Apple River line, Northern States Power Company – Wisconsin (NSPW) and Dairyland Power Cooperative (DPC) came to an agreement with objecting intervenors in that

proceeding to construct the line at 161 kV. The Commission amended its CPCN to authorize the line to be constructed at 161 kV rather than at 230 kV. This affects two alternatives, the Apple River-Weston and Chisago-Weston transmission line alternatives. The Apple River-Weston source was reduced from 230 to 161 kV. Also, the fact that the Chisago-Apple River line was not viable at 230 kV makes it unlikely that it could be built at 345 kV. The record demonstrates that even with the change in the voltage of the Chisago-Apple River line from 230 kV to 161 kV, the simultaneous import capability into WUMS with the Arrowhead-Weston project in place meets the objectives of the 1999 WRAO Report.

7. New Transmission Projects

Thirteen different transmission line projects have been or are being constructed that were not assumed in the 1999 WRAO Report. The applicants testified that none of the lines provides a new interconnection between MAPP and WUMS, nor do any of them improve the transfer capability of the existing MAPP-WUMS interface. Moreover, these transmission additions or changes have not significantly reduced the existing security vulnerabilities of the MAPP-WUMS interface associated with the loss of the Eau-Claire-Arpin line. Finally, none of the additional transmission projects affects the performance capabilities of any of the WRAO alternatives relative to the Arrowhead-Weston project or relative to each other.

8. The Costs of All WRAO Alternatives Have Increased

In 2002 and 2003, Black & Veatch re-examined the cost estimates they made in 1999 for all the alternative EHV alternatives presented in the 1999 WRAO Report. All of the alternatives have increased in cost since 1999. The cost of the Arrowhead-Weston project has increased in the same relative manner as has the cost of the other alternatives. The construction cost of the Arrowhead-Weston project is still greater than the King-Weston alternative, a fact that is

consistent with the difference in mileage. There are other cost differences which can be attributed to single circuit versus double circuit construction. The increased costs of the transmission line alternatives do not offset the need for an EHV transmission solution.

9. MISO Formation

MISO started operations on February 1, 2002. MISO addresses interconnection requests and coordinates the evaluation of new transmission services requests. This more centralized operational mode does not change the capabilities of any of the project alternatives.

Based on the record evidence regarding Wisconsin's generation and transmission system, the Commission finds that the generation and transmission system changes in Wisconsin since the Final Decision in this docket have not offset the increased peak demand in WUMS and do not invalidate the 2k/2k/3k transfer target underlying the 1999 WRAO Report. The Commission also finds that the other planning goals underlying the 1999 WRAO Report continue to be valid in resolving the existing security vulnerabilities of the MAPP-WUMS interface: i.e., (1) the need for a strong new tie to the west that could withstand a worst case single contingency outage (the loss of King-Eau Claire-Arpin 345 kV line); (2) the need to provide adequate dynamic and voltage stability performance within an expected range of operation; (3) the need to reduce the Arpin phase angle problem to permit restoration of service on the King-Eau Claire-Arpin line within NERC operating parameters; and (4) to mitigate congestion loadings on the existing MAPP-WUMS interface.

10. Additional Considerations

a. Choke point issue

Intervenors raised the issue of a “choke point” on ATC’s 345 kV transmission line between the Rocky Run and North Appleton Substations attempting to illustrate some weakness in the capability of the Arrowhead-Weston project to transport power into WUMS. This is not a correct assumption. An analysis of a contingency outage of the Rocky Run-North Appleton 345 kV line was considered in both WIRES Phase I and Phase II reports. The Arrowhead-Weston project maintains the simultaneous import capability of 3,000 MW for that contingency. This is primarily achieved through the existing high voltage (HV) lines (greater than 100 kV) in the area.

b. Phase shifter

Intervenors expressed concern that the Arrowhead-Weston project is weak because the Arrowhead termination point has a 230 kV bus voltage and a phase shifter transformer would be necessary at that terminus. This concern is misplaced. The Arrowhead Substation is also the eastern terminal for a +/- 250 kV direct current line from North Dakota. Use of a phase shifter transformer is a common method of limiting power flows under normal and contingency situations. The phase shifter enhances the performance of the Arrowhead-Weston project to optimize line loadings and preserve voltage stability margins following contingencies in the area.

c. Possible but improbable events

Intervenors also raised concerns that possible but improbable (PBI) events were not considered or used as a criterion to analyze and compare EHV alternatives. The WIRES and 1999 WRAO Reports did evaluate the effects of some unlikely contingencies. These were studied as line faults and subsequent breaker failures. These reports concluded that the

Wisconsin transmission system remained stable for all of the alternative projects. The record evidence indicates that the Wisconsin transmission system has been studied using NERC criteria which include the categories of multiple contingencies and “extreme disturbances” that are beyond the more commonly studied and reported single contingency criteria.

D. Analysis of Alternatives Other Than Building an EHV Line

The record in this proceeding does not support the conclusion that additional generation, distributed generation, or renewable energy sources would be a more cost-effective and technically feasible solution to address the security issues currently associated with the MAPP-WUMS interface. Upon reopening of this proceeding, a further review of other non-transmission alternatives such as additional fossil-fuel generation, distributed generation and renewable energy resources, such as wind power and biomass fuel sourced generation, was made. The record demonstrates that, on a present value of revenue requirements (PVR) basis, alternative solutions involving generation and renewable energy resources are significantly more expensive than either the Arrowhead-Weston project or the King-Weston alternative.

The applicants’ analysis also shows that the potential for energy efficiency and demand side management technologies are not a viable, cost effective, alternative to address Wisconsin’s transmission system needs. The applicants estimate that 785 MW of load would need to be reduced by 2011 to replace the Arrowhead-Weston project. The current Focus on Energy program estimates that 161 MW may be achieved by 2011. This projected savings is significantly less than needed for system adequacy and does not offset the need for an EHV alternative.

Notwithstanding the higher costs of the various generation alternatives, demand side management or energy efficiency, there is simply no evidence that any of these alternatives is

technically feasible in resolving the security vulnerabilities to which the transmission system is currently subjected. The issue of system security is still a prevalent component concerning the operation of today's transmission system in Wisconsin. As described in the previous proceeding, electric reliability is composed of two major components: adequacy and security. Adequacy addresses the issue of having enough generation and transmission resources to meet the system demand requirements with a high probability of service at a reasonable price. Security addresses the planning, construction and operation of the entire interconnected power system to withstand unpredictable but inevitable events such as storms or equipment failure. With a strong transmission system, these types of events should have a minimal impact on service and not extend damage to other critical equipment. Any power outages resulting from such events should be contained to the smallest area practicable. The security concerns that still face Wisconsin since the conclusion of the 1999 WRAO Report include operating guides, voltage stability, dynamic stability, potential cascading thermal overloads, and the Arpin phase angle problems. The Arrowhead-Weston project is still the option that addresses all of those security issues across the MAPP-WUMS interface.

E. Continued Reasonableness of Construction of the Arrowhead-Weston Project

Various intervenors, while endorsing the need for an EHV transmission line reinforcing the MAPP-WUMS interface to the west, have urged the Commission to reject the Arrowhead-Weston project and instead order ATC to begin planning for construction of either the King-Weston alternative or a variant, or the Prairie Island-Columbia alternative. The rationale advanced by these intervenors is that these other alternatives are superior to the Arrowhead-Weston project in various respects and should be pursued. Based on the record in this

proceeding, the Commission does not believe that such an approach is prudent and concludes that construction of the Arrowhead-Weston project continues to be reasonable.

While the Arrowhead-Weston line may not be a perfect solution to all possible transmission needs facing Wisconsin, the line does meet all of the planning criteria established by the 1999 WRAO Report and will provide all of these benefits. First, it will increase the transmission transfer capability into Wisconsin by at least 1,190 MW and will meet the 2k/2k/3k transmission target. Second, it will provide a strong new tie to the west that could withstand a worst-case single contingency outage and that will have excellent geographic diversity with the existing King-Eau Claire-Arpin 345 kV line. Geographic diversity with the existing King-Eau Claire-Arpin 345 kV line is especially important since the loss of the King-Eau Claire-Arpin 345 kV line is the worst-case single contingency event to be protected against by the new EHV alternative. Third, it will provide for adequate dynamic and voltage stability performance within an expected range of operation. Fourth, it will reduce the Arpin phase angle sufficiently to permit restoration of service on the King-Eau Claire-Arpin line within NERC operating parameters. Fifth, it will reduce congestion loadings on the existing MAPP-WUMS interface. Sixth, it will provide reactive power support for the Weston and Arrowhead areas. Seventh, the benefits provided by the Arrowhead-Weston project will be realized sooner than would any of the benefits of the other EHV alternatives. This follows from the fact that the Commission has already issued a CPCN for this project. It also follows from the fact that no Minnesota utility has committed to construct the Minnesota portion of any other EHV alternative.⁵ While it is possible that some Minnesota utility could commit to this undertaking, it is clear that the Commission

⁵ It is possible that a King-Weston variant that crossed the St. Croix River at the King Power Plant could be built by ATC without a Minnesota utility's sponsorship.

would not have the authority to order a Minnesota utility to undertake such a project. The inability of the Commission to ensure that an alternative other than the Arrowhead-Weston project is built calls into question the technical feasibility of any of the other EHV alternatives.

1. King-Weston Alternative and Variants

Proponents of the King-Weston alternative or variants believe that technical merit, lower cost and lessened environmental impact make this alternative so clearly superior to the Arrowhead-Weston project that the Commission should pursue this option to the exclusion of the Arrowhead-Weston project. Unlike the Arrowhead-Weston project, a detailed route has not been developed for the King-Weston alternative, or any of the other EHV alternatives. The applicants estimate that it would take four years to obtain a CPCN and to obtain other state and federal regulatory permits necessary to construct an EHV alternative. Given the time that has elapsed since the applicants began planning for construction of the Arrowhead-Weston project and the fact that not all state and federal permits have been obtained, it is reasonable to conclude that construction of any of the EHV alternatives, other than the Arrowhead-Weston project, would result in a delay of from two to four years. During this period, Wisconsin's electric users will be needlessly subject to an insecure system. They would also be unable to purchase lower cost power that would be available to them through an enhanced transmission interface. There could also be unnecessary operating constraints on the proposed new baseload generating plant at Weston, if it is approved and constructed.

Although one claimed benefit of a King-Weston variant over the Arrowhead-Weston project is lower cost, the construction cost estimates for a King-Weston variant in this reopened proceeding are speculative as compared to the cost estimates for Arrowhead-Weston project and may not capture all ratepayer costs associated with building this alternative. The construction

cost estimates in this reopened proceeding do show that the lowest-cost King-Weston variant is less expensive to construct than the Arrowhead-Weston project in both 2002 dollars or in year of occurrence dollars. The Commission's consultant, RW Beck, testified that for a project like the King-Weston alternative which has not been developed beyond a conceptual stage, actual costs could diverge from cost estimates by 25 percent. This means that construction cost comparisons between the King-Weston alternative and Arrowhead-Weston project are somewhat more speculative and may not be indicative of the actual cost differences between these alternatives. For example, based on the PVRR analysis done by the applicants, the King-Weston alternative is more expensive than the Arrowhead-Weston project by \$188 million, when including an estimate of the missed savings from economic power purchases. While the Commission is not finding that the King-Weston alternative is \$188 million more expensive than the Arrowhead-Weston project on a PVRR basis, the analysis does demonstrate that construction cost estimates—however accurate or inaccurate they may be—do not capture all ratepayer costs associated with construction of these lines. Based on this record, while it appears that the King-Weston alternative might be less expensive to construct than the Arrowhead-Weston project (subject to the accuracy of the construction cost estimates), ratepayers may in fact pay more for the King-Weston alternative than for the Arrowhead-Weston project.

One area in which the Arrowhead-Weston project is clearly superior to any of the King-Weston variants is with respect to geographic diversity. The route of the Arrowhead-Weston project runs from the Arrowhead Substation near Duluth, Minnesota to the Weston Substation near Wausau, Wisconsin. It does not share any common corridors or terminal points with the existing King-Eau Claire-Arpin line as would a King-Weston variant. As noted above, geographic diversity with the existing King-Eau Claire-Arpin 345 kV line is especially

important since the loss of the King-Eau Claire-Arpin 345 kV line is the worst-case single contingency event to be protected against by the new EHV line. Siting a new major tie line to the west proximate to the only other 345 kV tie to the west would needlessly increase the risk of common mode failure for both lines. Construction of the Arrowhead-Weston project would obviate this concern.

As to other aspects of technical merit, it is true that the two King-Weston variants presented in the 1999 WRAO Report have better performance to address the phase angle problem at Weston than the Arrowhead-Weston project. However, with respect to other technical metrics, the performance of the King-Weston variants is comparable to that of the Arrowhead-Weston project. For example, the Arrowhead-Weston project would increase the transfer capability through the WUMS southern interface to 2,130 MW while the King-Weston variants would increase it to 2,140 MW, a difference of less than one-half of 1 percent. Likewise, the difference in the transfer capability through the WUMS western interface is less than one percent. Unlike the King-Weston variants, the Arrowhead-Weston project has the best line loss performance of any of the EHV alternatives considered by the 1999 WRAO Report.

As to a consideration of environmental impacts, the Commission has already prepared an environmental impact statement for the Arrowhead-Weston project and has sited the line pursuant to Wis. Stat. §196.491(3)(d)3. This has provided the Commission with a comprehensive view of the environmental impacts associated with construction of the Arrowhead-Weston project. Siting of a King-Weston variant would require an environmental impact statement to be completed and public hearings held. While the EIS for the Arrowhead-Weston project also included an analysis of the environmental impacts of the King-Weston alternative, there is a disparity in the relative knowledge of the environmental impacts of these

two projects. On a general level, the Arrowhead-Weston project can be said to cross more wetlands and forests than would the King-Weston variants, while the King-Weston variants cross more farm land and impact more people. While the Arrowhead-Weston project crosses the Namekagon River, the King-Weston variants would cross the St. Croix River. It can be said that the environmental impacts of the Arrowhead-Weston project would differ in many ways from those associated with the King-Weston alternative.

2. The Prairie Island-Columbia 345 kV Alternative

The Prairie Island-Columbia alternative would be the most expensive of the EHV alternatives to construct, costing \$54 million more than the Arrowhead-Weston project in 2002 dollars. The line underperforms the Arrowhead-Weston project in some important respects. First, it does not perform as well as the Arrowhead-Weston project in terms of the Weston phase-angle performance. This is an important limitation considering that a significant generation addition is planned for the Weston Generating Station site by WPSC. Second, it is less responsive to the phase angle problem at Arpin. Third, it lacks geographic diversity with the existing King-Eau Claire-Arpin and Prairie Island-Byron 345 kV lines at its Prairie Island terminus. Fourth, it will take longer to permit and build than the Arrowhead-Weston project.

Unlike the Arrowhead-Weston project, a detailed route has not been developed for the Prairie Island-Columbia alternative and no Minnesota utility has agreed to build the Minnesota portion of the line. The applicants estimate that it would take four years to obtain a CPCN and to obtain other state and federal regulatory permits necessary to construct an alternative EHV line. Given the time that has elapsed since the applicants began planning for construction of the Arrowhead-Weston project, and the fact that not all state and federal permits have been received,

it is reasonable to conclude that construction of any of the EHV alternatives, other than the Arrowhead-Weston project, would result in a delay of two to four years.

Although the Prairie Island-Columbia alternative does have marginally greater transfer capability into WUMS across the southern and western interfaces than either the Arrowhead-Weston project or the King-Weston alternatives, all three of these lines meet the WRAO transfer target of 2k/2k/3k. Since the Arrowhead-Weston project was filed by the applicants to resolve the security issues which still affect the Western interface (reliance on operating guides, voltage stability and dynamic stability, the potential for cascading thermal overloads and the Arpin phase angle closure problem) and not to maximize wholesale power transactions, the difference in the transfer capabilities between the three alternatives is not significant. What is significant is the extended delay in resolving the security concerns associated with the operation of the MAPP-WUMS interface that will result if the Prairie Island-Columbia alternative is built. For this reason alone, the Commission does not consider construction of the Prairie Island-Columbia alternative to be a reasonable alternative to construction of the Arrowhead-Weston project.

In conclusion, the Commission concludes that, based on technical merit, cost or environmental considerations, it would not be reasonable to reject construction of the Arrowhead-Weston project in favor of either a King-Weston variant or the Prairie Island-Columbia alternative. As was aptly noted in the Final Decision in this docket at page 26-27:

The Arrowhead-Weston project is not the only extra-high voltage transmission line that could potentially meet the need, Many of these other transmission lines have technical performance attributes comparable to the Arrowhead-Weston project. However, no project application has been filed for any of these alternatives. To reject the Arrowhead-Weston project in favor of an alternative extra-high voltage transmission line that has not been fully developed in an application would mean that the state must incur further delay, while potential routes for this replacement project are investigated and a CPCN application is

prepared. Given the immediate need facing Wisconsin, further delay would not be in the public interest.

F. Analysis of the Environmental Effects of the Construction of the Temporary Stone Lake Substation and the Weston Substation.

In this reopened docket, the applicants have not proposed changing the footprint for the Arrowhead-Weston transmission line from the route selected by the Commission in the Final Order in this docket. The applicants have proposed to construct a temporary electric substation at Stone Lake to be used during the construction of the segment of the line north of Stone Lake. The applicants also propose to relocate the Weston Substation to a different portion of the Weston Generating Station site to accommodate the construction of the proposed Weston 4 power plant. Based on the evidence in this record, the environmental impact of the construction of a temporary substation at Stone Lake and the relocation of the Weston Substation is not significant and does not warrant the preparation of a supplemental environmental statement for this project.

1. Stone Lake Substation.

The applicants have applied to temporarily expand the Stone Lake Substation which is owned by NSPW to ensure reliable service in northwestern Wisconsin while construction of the Arrowhead-Weston project takes place. All construction would take place on land owned by NSPW. The existing Stone Lake Substation is located on a 50-acre parcel. The expansion of the substation and the 345 kV line or lines needed to connect the substation to the Arrowhead-Weston transmission line would require the clearing of just under six acres of woodland on the 50-acre parcel. There are no known occurrences of endangered, threatened, or special concern species in the project area. There are no wetlands within the project area. A review of the Wisconsin Historical Society's data found no historical or archeological records for

the proposed project site. The Commission is not aware of any special or unique habitat or landscape features on the project site that would require extraordinary protection.

The disposal of excavated soils and control of soil erosion during and after construction would be the primary concerns for the Stone Lake Substation expansion. Many of the effects of the construction of the Arrowhead-Weston project involve the same environmental impacts as would be associated with the construction activities necessary at the Stone Lake Substation. Consequently, the expansion of the Stone Lake Substation will not affect the quality of the human environment in any significant manner or to any extent not already considered in the Commission's final EIS for this project.

The applicants will need to adhere to the DNR's Best Management Practices (BMP) for construction sites in order to mitigate any environmental impacts which may result from construction activities associated with the temporary expansion of the substation at Stone Lake. In addition, all excavated soils will need to be disposed of properly. While the application states that the expansion of the Stone Lake Substation is temporary, there remains the possibility that electric system needs in the area could cause the expansion to become permanent. If the Stone Lake Substation is not made permanent, ATC must prepare a recovery plan to return the land to its original condition after the expanded substation is no longer needed. This recovery plan should be filed with Commission staff for review.

2. Weston Substation.

The applicants have also applied to modify the previously approved construction activities at the Weston Substation. Specifically, the applicants have proposed to move the location of the Weston Substation, as approved in the Final Order, so as to accommodate the

construction of a new coal-fired generator at the existing Weston Generating Station site. The new substation would be built entirely on utility-owned property. The estimated size of the substation is about 14 acres. In addition, two 345 kV and several 115 kV circuits would be needed to connect the substation. The new transmission circuits would be built entirely on power plant property currently owned by WPSC and would affect about 18 acres of woodland.

The land at the proposed substation site is in a disturbed condition and is not remarkable from an environmental perspective. There are no known recent (within the last 25 years) occurrences of endangered, threatened, or special concern species or communities on the project site. There is, however, an historic record (from 1932) of the occurrence of a special concern plant species, *Clematis occidentalis*, known as the purple clematis. This plant is a climbing perennial woody vine found in northern upland forests. While unlikely, there is a potential that this special concern species may still occur in the woodlands affected by the new transmission circuits. It is advisable to survey the affected woodlands for purple clematis. If it is found in the construction area, then to the extent practicable, the applicants should design the line to avoid impacts.

No wetlands would be directly affected by the substation. There is one known archeological site on the east bank of the Wisconsin River that is near the project site. However, construction would most likely not occur within 300 feet of this site.

Primary environmental concerns for the Weston Substation construction are proper disposal of excavated soils and control of soil erosion. The disposal of excavated soils and control of soil erosion during and after construction would be the primary concerns associated with the construction of the Weston Substation. Many of the effects of the construction of the Arrowhead-Weston project involve the same environmental impacts as would be associated with

the activities necessary at the construction of the Weston Substation. Consequently, the construction of the Weston Substation will not affect the quality of the human environment in any significant manner or to any extent not already considered in the Commission's final EIS for this project. In order to mitigate any environmental effects associated with the construction of the Weston Substation, the applicants will need to remove excavated soils from the site when construction is complete. In addition, applicants shall utilize the DNR's BMP for construction sites to prevent erosion of all exposed soil and the construction site itself.

II. PETITION TO AMEND THE FINAL ORDER TO CONSTRUCT A FIBER-OPTIC CABLE

In the Commission's Final Decision, the use of an OPGW was specifically prohibited. While the original proposal included a 48-strand OPGW, only 10 to 12 of these fibers were to be used to control and monitor power flows on the transmission line, and the applicants intended to lease the remaining fiber-optic capacity to any interested third party for general communications. Members of the public raised concerns about combining such an unregulated, revenue-producing activity with the construction of a transmission line, in part because utility condemnation authority would be used to promote a non-utility business venture. Subsequently, the applicants removed the cost of this component from project cost estimates and declared that they would not pursue its use unless a third party came forward to share in the costs.

In the fiber petition, the applicants propose that the Commission allow the use of a 12-strand OPGW for the sole purpose of monitoring, operating, and protecting the transmission grid. The OPGW is the most capable and reliable technology for controlling and monitoring transmission facilities, and is an appropriate control technology for the Arrowhead-Weston project.

To ensure that the OPGW is not being used by the applicants for non-utility purposes, the applicants will be required to file with the Commission an annual report detailing the applicants' fiber optic cross section composition and utilization.

III. PETITION TO AMEND THE FINAL ORDER CLARIFYING THE EFFECTIVE DATE OF CPCN

In their "Petition to Amend Final Order Clarifying Effective Date of the CPCN" the applicants maintain that they have become trapped in a regulatory box which would, as a practical matter, thwart their ability to implement the CPCN they have received for construction of the Arrowhead-Weston project. They assert that, without a change in the Commission's CPCN order, they may not be able to secure the permits and approvals from the DNR that are required to construct the Arrowhead-Weston project. Although the applicants contend that the cause of this problem is found in state law, they assert that the Commission can provide a solution that is consistent with legislative intent by engaging in statutory construction.

The basis of the regulatory box that traps the applicants is a holdover provision of the original Power Plant Siting Act of 1975 (PPSA). This law currently states:

196.491(3)(e) . . . The commission may not issue a certificate of public convenience and necessity until the department [DNR] has issued all permits and approvals identified in the listing specified in par. (a)3. that are required prior to construction.

Among the DNR permits required prior to construction are storm water runoff permits (Wis. Admin. Code ch. NR 216) and temporary bridge permits (Wis. Stat § 30.123). The DNR has declared that it will not process these permit applications until the applicants acquire a "land ownership interest" in the sites where these permits are needed.⁶ The applicants maintain that

⁶ Wis. Admin. Code §§ NR 216.42(1) and 216.44 require the landowner to file a notice of intent before commencing any construction activities that would disturb the land. Under Wis. Stat. § 30.123(2), an application for a temporary bridge permit must demonstrate "evidence of permission to construct the bridge from the riparian owners." See Applicants' "Petition to Amend Final Order Clarifying Effective Date of the CPCN," Tabs E and F.

they are unable to acquire this land interest. They claim that they cannot acquire easements voluntarily, because of landowner opposition to the Arrowhead-Weston project, and they cannot condemn easements because the state law on eminent domain only grants condemnation authority after a CPCN has been issued.⁷ As the applicants describe this conundrum:

If § 196.491(3)(e) requires DNR permits to be issued before the CPCN becomes effective and NR 216 and § 30.123 prohibit Applicants from submitting applications for those same DNR permits until the CPCN has become effective, then there is a statutory conflict.

(Applicants' Response to Intervenor's Comments Regarding CPCN Effective Date, p. 8.)

The PPSA created a statutory scheme for the construction of a major electric transmission line or generating plant. For electric generating plant projects, the PPSA wove together the overlapping responsibilities of both the Commission and the DNR. The PPSA set out separate timelines for each agency to follow, one for the DNR's review of generation permit applications and one for the Commission's review of the CPCN application. Because the PPSA required the DNR to complete its review long before the Commission issued a CPCN, the statutory procedure assumed that a project sponsor would receive all the necessary DNR permits and approvals first, before a CPCN was issued. *See* Wis. Stat. §§ 196.491(3)(f) and (g) (1996-1997).

Given this statutory process, which placed the DNR on an accelerated schedule for its review of permit applications, the PPSA's declaration that the Commission may not issue a CPCN until after the department had issued all the permits listed in its initial review of an engineering plan made sense. It allowed the Commission the opportunity to weed out proposed locations for a new generating plant that could not receive necessary DNR approval, and to focus on those sites most feasible.

⁷ Wis. Stat. § 32.07(1) provides, "A certificate of public convenience and necessity issued under s. 196.491(3) shall constitute the determination of the necessity of the taking for any lands or interests described in the application."

The PPSA contained a hidden problem, however. If a utility seeking to build a new generating plant had not already owned the proposed site location, the DNR could have rejected the utility's applications for agency permits because the applicant lacked "land ownership" rights. Then, the Catch-22 that now binds the applicants would have appeared. This statutory conflict remained dormant, though, for more than twenty years—either because the utilities that built new plants already had sufficient land ownership interests, or because they were able to acquire these interests voluntarily by purchasing easements.

The PPSA as initially enacted did not require that DNR permits for transmission lines be issued prior to a CPCN. Prior to the enactment in 1997 of Act 204, Wis. Stat. § 196.491(3)(e)—providing that department approvals and permits designated in subparagraph (2m) be issued before a CPCN—was limited to generation facilities and did not apply to transmission line applications. Act 204 substantially rewrote the PPSA. The primary change was the elimination of the advance plan, but the Legislature also made other modifications that had the effect of treating transmission line CPCN applications the same as generating plant applications. After enactment of Act 204, all DNR permits required for construction—not just permits the grant or denial of which could significantly affect the overall design or location of a generation plant—were required to be issued prior to the issuance of a CPCN for a transmission line under the literal terms of Wis. Stat. § 196.491(3)(e).

Opponents contend that the applicants' proposal does not comport with all of the legislative policies underlying the PPSA. They contend that the PPSA sought to ensure that only those lands on which construction is certain are condemned, that landowners have adequate notice of the size and type of facility to be built and that several special problems associated with power plants and high voltage lines are taken into account in awarding compensation.

Opponents also assert that the applicants' proposal would violate this public policy because it would grant the applicants overly broad power to condemn property before they have identified, and the Commission approved, the specific route for the Arrowhead-Weston project.

These concerns are misplaced. The Final Decision, and the underlying record developed at hearing, prescribes a specific transmission line route. WPSC and MP introduced their CPCN application for the Arrowhead-Weston project into the record as Exhibit 171, and contained within this application are plat maps that identify every landowner along the route, in each segment of the project. By naming in its order which route segments it was approving, the Commission specified precisely which landowners are affected. Numerous landowners called Commission staff immediately after the Commission's decision, inquiring whether the transmission line would cross their property. The Final Decision is sufficiently specific that Commission staff gave these callers an exact answer. Consequently, there is no possibility that the applicants could condemn land not identified by the Commission as needed for construction of the line. Moreover, the application and subsequent Final Decision identifies the nature of the facilities that will impact landowners on the route selected for the line.

It is also worth noting that the Legislature has recently considered this problem and prospectively resolved the apparent tension between Wis. Stat. § 196.491(3)(e) and DNR permitting pre-requisites with the enactment of 2003 Wis. Act. 89. Under section 13, CPCN applicants are expressly authorized to apply for relevant DNR permits and are not required to demonstrate an ownership interest in land that is subject of the proposed construction project.

In the context of this application, literal compliance with this requirement of Wis. Stat. § 196.491(3)(e) would effectively preclude construction of the project. The extreme length of the project (210 miles), the number of landowners affected and landowner opposition to the

project precludes, as a practical matter, the procurement on a voluntary basis of the land interest necessary to obtain all DNR permits necessary for construction. In order to assure that the DNR permits are processed and the project is constructed, the applicants will need the authority to condemn necessary land interests in parcels needed for construction of the project.

In carrying out its statutory responsibilities, the Commission must act within the authority provided to it by the Legislature. Where there are conflicts between the statutes, the Commission must interpret the statutes to discern and implement the intent of the Legislature. *Heritage Credit Union v. Office of Credit Unions*, 2001 WI App 213, ¶11, 247 Wis. 2d 576, 634 N.W.2d 593. The issue of the Commission's authority to issue a conditional CPCN before all necessary DNR permits were issued was addressed by the Wisconsin Supreme Court in *RURAL et al. v. Public Service Commission of Wisconsin and RockGen Energy LLC*, 2000 WI 129, 239 Wis. 2d 660, 619 N.W.2d 888. In *RURAL*, the Commission had issued a CPCN to RockGen Energy LLC, an independent power producer, before the DNR had granted all of its permits to the company. In an effort to be consistent with Wis. Stat. § 196.491(3)(e), the Commission's Order stated as a condition that "RockGen Energy shall obtain from DNR all permits and approvals that are required before beginning any construction." In *RURAL* the Supreme Court validated this conditional order as being in conformity with legislative intent, concluding that when the PPSA conflicts with other statutory requirements, a reasonable solution is the issuance of a conditional CPCN.

In view of the legislative history discussed above, it is reasonable to conclude that the Legislature did not intend in 1997 Wis. Act 204 to require all DNR permits required prior to construction of a transmission line be issued before an applicant had authority under Wis. Stat. ch. 32 to acquire necessary easements.

The Commission determines that to resolve the apparent conflict between Wis. Stat. § 196.491(3)(e) and the DNR permit requirements, it is appropriate to amend the Final Decision to provide that it is effective upon mailing, subject to conditions. In particular, the applicants shall not commence construction as defined in Wis. Stat. § 196.491(1)(b) on any construction spread until they obtain from the DNR all approvals and permits identified by the DNR as required to be issued prior to the construction of the construction spread. This revision is intended to clarify that applicants now have the authority to condemn land under Wis. Stat. ch. 32.

ORDER

1. The CPCN granted to the applicants in the Final Decision in this docket is amended to read as follows: WPSC, MP, and ATC may construct the Arrowhead-Weston project as a new 210.2 mile, 345 kV transmission line and required substation upgrades, using the facilities described in the application and as modified by the Commission's October 30, 2001, Final Decision, and as modified by this order, at an estimated cost of \$420,308,000. The applicants may install a fiber optic communication system using a 12-strand OPGW as part of the approved facilities. The new transmission line shall connect MP's Arrowhead Substation near Duluth, Minnesota, with WPSC's Weston Substation near Wausau, Wisconsin, following the Oliver 1 Modified Route and the Owen 4 Route.

2. Order Point 2 of the Commission's October 30, 2001, Final Decision is replaced to read as follows: The applicants shall submit quarterly progress reports to the Commission indicating the Arrowhead-Weston project's major construction and environmental milestones, the extent of physical completion to date, and expenditures to date, commencing within 90 days

of the date that construction commences. In addition, once annually the quarterly progress report shall also include a revised total project cost estimate.

3. Order Point 3 of the Commission's October 30, 2001, Final Decision is replaced to read as follows: The applicants shall promptly notify the Commission before proceeding, subject to review and approval by the Commission, with any substantial changes in the design, size, cost (exceeding 5 percent of the estimated cost shown in this order, \$420,308,000), location, or ownership of the Arrowhead-Weston project facilities.

4. Order Point 13 of the Commission's October 30, 2001, Final Decision is replaced to read as follows: This order takes effect on the day after mailing. The amended CPCN for the Arrowhead-Weston project is issued on the effective day of this order. This revision is intended to clarify that the applicants now have the authority to condemn land. The applicants shall not commence construction as defined in Wis. Stat. § 196.491(1)(b) on those construction spreads that require DNR approvals and permits prior to construction until they obtain from the DNR all approvals and permits identified by the DNR as required to be issued prior to construction on those construction spreads. The applicants may conduct engineering, surveying, land easement condemnations, and other activities that do not constitute commencement of construction, as permitted by law.

5. All order points listed in the Commission's October 30, 2001, Final Decision remain in effect, except as modified by this Order Modifying Final Order.

6. There is sufficient uncertainty in the nature of farm disease mitigation practices and associated costs to require that the applicants submit and obtain Commission approval of a more detailed estimate of associated costs which shall not exceed \$15 million. Prior to commencement of construction, the applicants' shall file a farmland protection plan, including a

specific description of the farm disease mitigation practices and a detailed estimate of total project farm disease mitigation costs, for review and approval by the Commission.

7. As construction proceeds, the applicants' shall submit spread-by-spread plans that include the specific farm disease mitigation measures required for that spread and estimated costs for each construction spread. The applicants shall submit the spread-by-spread plans prior to commencement of construction on that spread.

8. The applicants shall file with the Commission a protection plan for the Namekagon River crossing. Because of uncertainty in the estimated cost of any underground crossing of the Namekagon River, the plan shall also include a detailed estimate of costs associated with any underground crossing if such a crossing is required by the NPS, for review and approval by the Commission.

9. Should the need for the Stone Lake Substation expansion remain temporary, the applicants shall submit to Commission staff a recovery plan for returning the land to its original condition.

10. The applicants shall notify the Commission if it is determined that the Stone Lake Substation expansion will be made permanent. The notification shall contain an explanation of the purpose and reason for retaining the expansion as permanent.

11. All construction activities for the Stone Lake Substation expansion and the new Weston Substation shall protect against soil erosion by implementing a construction erosion control plan using DNR's BMP. Proper disposal of all excess soils shall be required during substation and transmission line construction.

12. Forested areas affected by construction of the Weston Substation and associated facilities shall be surveyed for the presence of purple clematis (*Clematis occidentalis*). Damage to this species shall be avoided to the greatest extent practicable.

13. The applicants may install a 12-strand OPGW for the sole purpose of monitoring, operating, and protecting the transmission grid. To ensure that the OPGW is not being used by the applicants for non-utility purposes, the applicants shall file with the Commission an annual report detailing the applicants' fiber optic cross-section composition and utilization.

14. Jurisdiction is retained.

Dated at Madison, Wisconsin, _____

By the Commission:

Lynda L. Dorr
Secretary to the Commission

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See attached Notice of Appeal Rights

Notice of Appeal Rights

Notice is hereby given that a person aggrieved by the foregoing decision has the right to file a petition for judicial review as provided in Wis. Stat. § 227.53. The petition must be filed within 30 days after the date of mailing of this decision. That date is shown on the first page. If there is no date on the first page, the date of mailing is shown immediately above the signature line. The Public Service Commission of Wisconsin must be named as respondent in the petition for judicial review.

Notice is further given that, if the foregoing decision is an order following a proceeding which is a contested case as defined in Wis. Stat. § 227.01(3), a person aggrieved by the order has the further right to file one petition for rehearing as provided in Wis. Stat. § 227.49. The petition must be filed within 20 days of the date of mailing of this decision.

If this decision is an order after rehearing, a person aggrieved who wishes to appeal must seek judicial review rather than rehearing. A second petition for rehearing is not an option.

This general notice is for the purpose of ensuring compliance with Wis. Stat. § 227.48(2), and does not constitute a conclusion or admission that any particular party or person is necessarily aggrieved or that any particular decision or order is final or judicially reviewable.

Revised 9/28/98

APPENDIX A
(CONTESTED)

In order to comply with Wis. Stat. § 227.47, the following parties who appeared before the agency are considered parties for purposes of review under Wis. Stat. § 227.53.

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(Not a party but must be served)
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